

Enabling Your Future Mobile Lifestyle

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Intel's Mobility Vision



**Communications and Computing
Any Time, Any Place, Any Network**



New Mobile Device Enablers are driven by:

- Envisioning future mobile device needs...*
- Technology breakthroughs...*



Today's Focus

- **Mobile Lifestyle: Envisioning New Uses**
- **Building a Better Network**
 - Wireless network co-existence
 - 802.21 for seamless roaming between networks
 - WiMAX broadband
- **Fueling Mobility: Multiple radios in devices**
 - Challenges and research efforts

Mobile Platforms Are Evolving Based on People's Needs

- People want to take their life with them
- Want to keep in touch with the people and things they care about, no matter where they go



Types of uses:

- Always-connected Internet (browsing, email, IM, etc.)
- IP telephony
- Media download and storage
- Interactive gaming
- Streaming media (real time audio & video)

New Uses: Enabling the Future Mobile Lifestyle

Intel Research Seattle Lablet

In collaboration with University of



CareNet Display



Object motion sensor

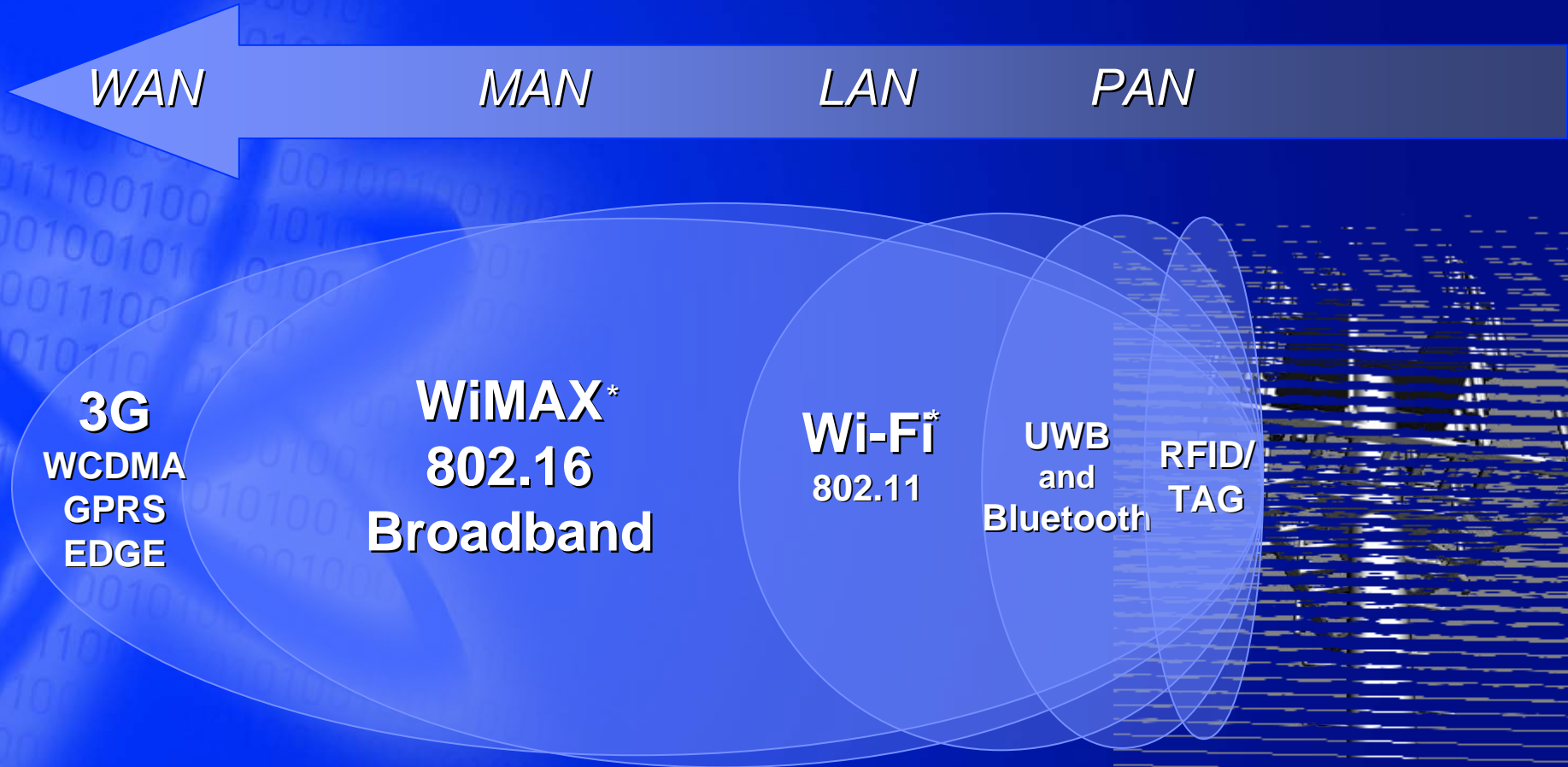


Wrist RFID sensor

SHARP (System for Human Activity, Recognition, and Prediction)

- **New Uses:** Monitoring others and oneself; an essential aspect of human life
- **Sensing, Models, Inference Engines:** Monitoring with dense sensor nets
- **It's all about the user's needs:** Simple, low-cost, low-power, non-intrusive

Building a Better Network: Wireless Technologies Will Co-Exist



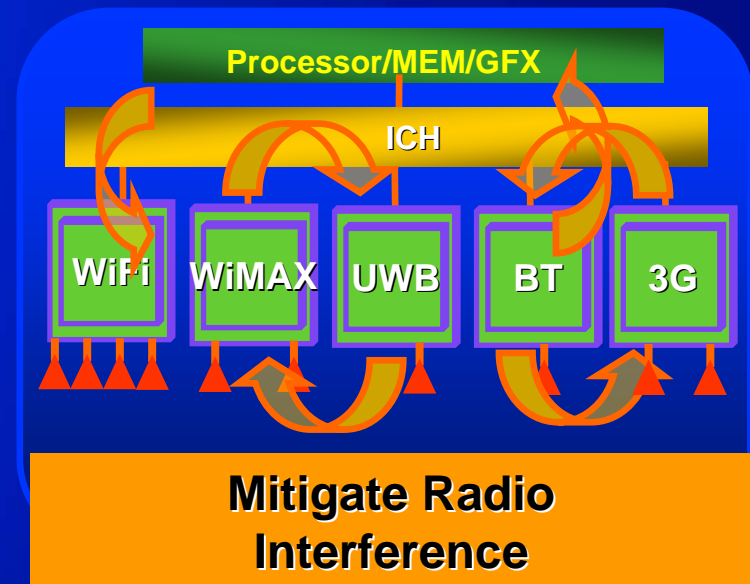
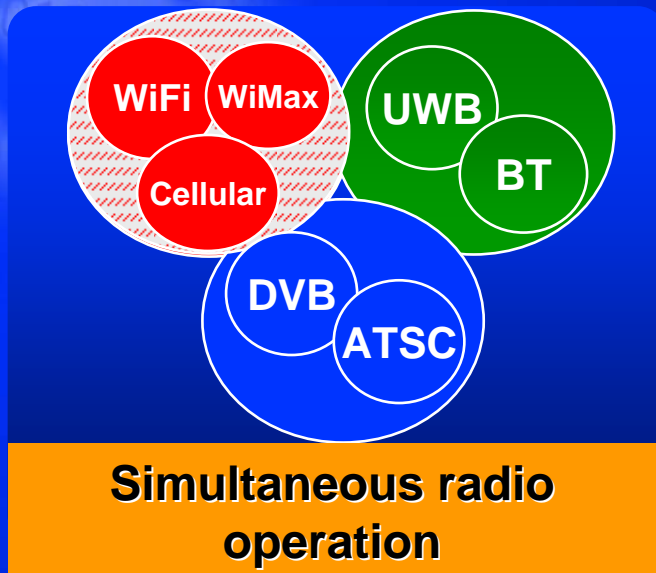
The Goal: Always best connected across
all networks

Any time, Any Place, Any Network Communications

Integrate multiple radios into mobile platforms for an always best connected user experience

Creates significant challenges:

- Simultaneous radio operation
- Mitigate radio interference
- Deliver Low-cost, Low-power, Small-Footprint solutions



Fueling Mobility: Wireless Platform Innovation

SW Stack

MAC

Baseband

Front End

Antenna

3. Worldwide Standards

- WiMAX Forum leadership
- 802.21, 3GPP, Spectrum Leadership

2. Seamless Networking

- Roaming, mesh networking, network management, easy network setup, simultaneous operation

1. Multi-radio Silicon

- Digital-Enhanced Radio Architecture
- CMOS radios: Low-cost, small footprint, low power

Making it happen: Multi-Radio Silicon

Recent breakthroughs:

*Low-Cost, Low Power,
Integrated CMOS RF*

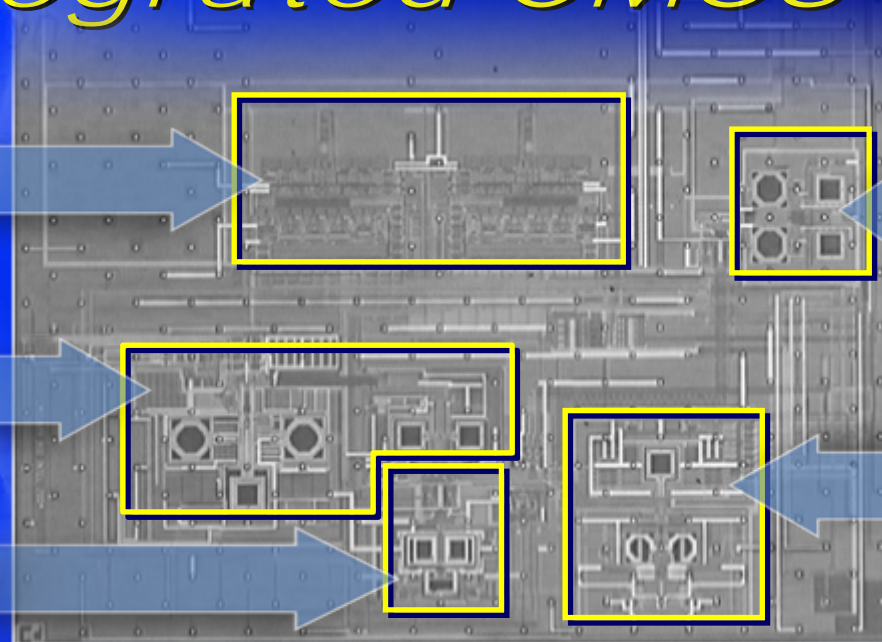
I/Q Baseband

LO Generation

5GHz RX

2.4GHz RX

5GHz TX

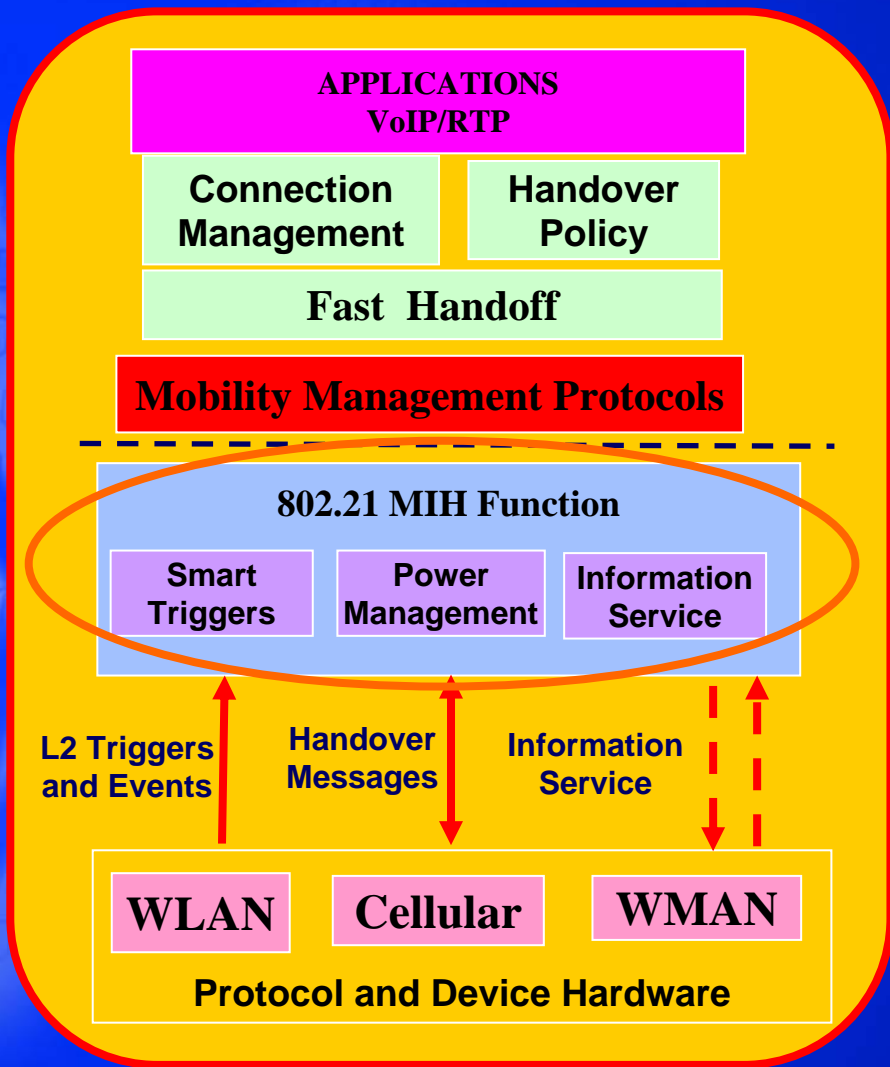


Key advances: 90nm Transceiver die

System in a package, Low Power (170mW Receive), 100 MHz baseband

Low-cost, Low-power, Small-footprint innovation for future mobile devices

Making it happen: Seamless Networking



- **Seamlessly move between Wi-Fi ↔ WiMax ↔ Cellular**

- Network Discovery and Selection
- Power On/Off Radios for access
- Network changes invisible to user

- **Defining Common Technology Components**

- Link Layer Triggers
- Information Service
- Handover Messages

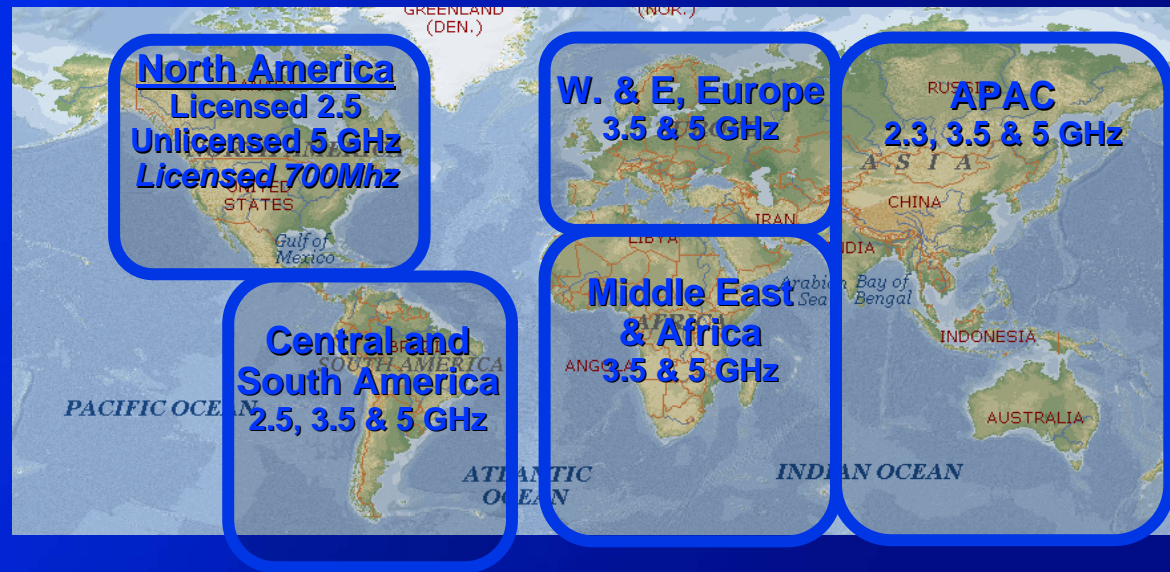
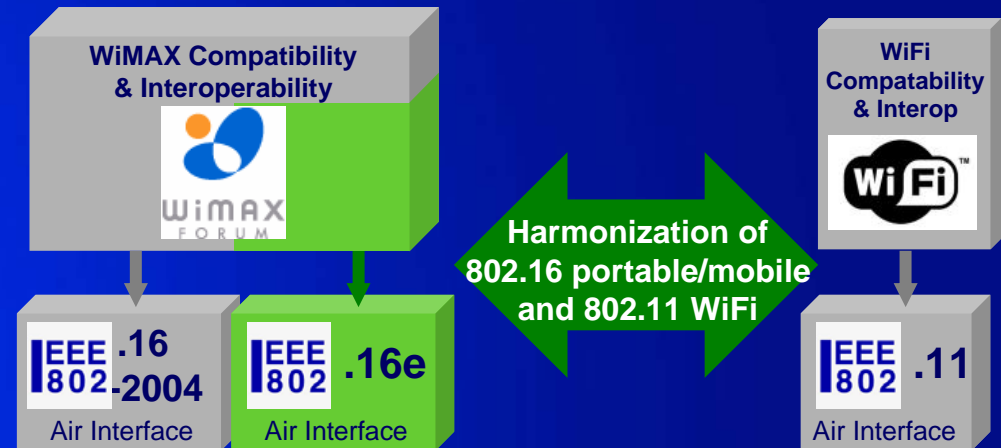
- **Enable New Usage Models**

- Mobile VoIP, IMS
- Enterprise applications to the field

IEEE 802.21: Providing seamless network connectivity

Worldwide Standards Are Key

- One 802.16 Standard for portable and mobile
- Harmonize WiFi, WiMAX networks, clients for complementary use
- Work toward common spectrum for licensed and unlicensed radios
- E2E architecture that comprehends IP and 3G based operators



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Summary

- New Usage Models & Technology Breakthroughs *Enable the Future Mobile Lifestyle*
- Multi-radio technology will enable always best connected user experience
- Worldwide standards are key

Q&A